

AUTOMATIC FREQUENCY CONTROL SYSTEMS AND METHODS FOR
JOINT DEMODULATION

ABSTRACT OF THE DISCLOSURE

5 A joint demodulator is configured to generate an estimated first frequency or first frequency error for the first signal and an estimated second frequency or second frequency error for the second signal. A first long-term automatic frequency control is responsive to the estimated first frequency or first frequency error, wherein the joint demodulator is responsive to the first long-term automatic frequency control. A
10 second long-term automatic frequency control is responsive to the estimated second frequency or second frequency error, wherein the joint demodulator is responsive to the second long-term automatic frequency control. First and second local automatic frequency controls also may be included in the joint demodulator, wherein the first
15 long-term automatic frequency control is responsive to the first local automatic frequency control and the second long-term automatic frequency control is responsive to the second local automatic frequency control. The first long-term automatic frequency control and the second long-term automatic frequency control can produce
20 respective first and second frequency offset signals that are applied to the joint demodulator. Alternatively, a difference between the first and second frequency offsets is applied to the joint demodulator and the first frequency offset is applied to a downconverter that downconverts the jointly received first and second signals and provides the downconverted signals to the joint demodulator.